

**Amendments to the Claims**

This listing of the claims will replace all prior versions, and listings, of claims in the application:

**Listing of Claims:**

**Claims 1-38. (Cancelled)**

39. **(Currently amended)** An apparatus for examining a liquid sample by titration, comprising:

- 1.1 a light source (2);
- 1.2 a light sensor (3);
- 1.3 a measuring head (1) which is to be immersed into the liquid sample to be examined, with an optical fibre which receives and conveys light from the light source, wherein the measuring head (1) comprises a recess (5) with an interruption in the optical fibre, so that into which the liquid to be examined penetrates into the recess (5) when [a] the measuring head (1) is immersed in the liquid sample;
- 1.4 wherein the measuring head (1) ~~may be~~ is separated from the light source (2) and the light sensor (3); and
- 1.5 a titration system for ~~the~~ a defined addition of a titration liquid into the liquid sample; ~~and further~~ comprising a drive device (12) for moving the measuring head (1) relative to a sample vessel (8) containing the liquid sample, at least a part of a determining device (2, 3, 5, 6.1, 6.2, 12, 13) being provided for determining ~~the~~ a liquid level of the liquid sample,

wherein the recess (5) of the measuring head (1) represents a part of the determining device (2, 3, 5, 6, 6.1, 6.2, 12, 13).

40. **(Previously presented)** An apparatus for examining a liquid sample according to claim 39, wherein the apparatus further comprises a measuring system for measuring the pH of the liquid sample.

41. **(Previously Presented)** An apparatus for examining a liquid sample according to claim 39, wherein the apparatus further comprises a temperature measuring system for measuring the temperature of the liquid sample.

42. **(Currently Amended)** An apparatus for examining a liquid sample according to claim 39, wherein the apparatus further comprises a fluidics system for the defined removal of an amount of the liquid ~~to be examined sample~~.

43. **(Previously presented)** An apparatus for examining a liquid sample according to claim 42, wherein the fluidics system comprises an apparatus for calibrating with at least one calibration liquid.

44. **(Previously presented)** An apparatus for examining a liquid sample according to claim 42, wherein the fluidics system comprises cleaning means.

45. **(Previously presented)** An apparatus for examining a liquid sample according to claim 39, wherein an exchangeable sample vessel (8) is provided for receiving the liquid samples.

46. **(Previously presented)** An apparatus for examining a liquid sample according to claim 45, wherein the apparatus comprises a sample-receiving region (7) in which the sample vessel (8) can be arranged below the measuring head (1).

47. **(Previously presented)** An apparatus for examining a liquid sample according to claim 46, wherein the sample-receiving region (7) is constructed from a material selected from the group consisting of stainless steel, titanium oxide, and stainless steel with titanium oxide coating.

48. **(Previously presented)** An apparatus for examining a liquid sample according to claim 46, wherein the sample-receiving region (7) comprises a device which disinfects it using UV light.

49. **(Previously presented)** An apparatus for examining a liquid sample according to claim 45, wherein a rotatable sample plate (9) with an indirect drive is provided for the sample vessel (8).

50. **(Previously presented)** An apparatus for examining a liquid sample according to claim 39, wherein the measuring head (1) is a disposable article.

51. **(Previously presented)** An apparatus for examining a liquid sample according to claim 50, wherein a device which detects a measuring head (1) that has already been used is provided.

52. **(Previously presented)** An apparatus according to claim 39, wherein the measuring head (1) comprises a holding device (49, 50) for holding on a socket of the apparatus, the holding device comprising a holding means (50), which is constructed in such a way that the holding device (49, 50) can only be used once.

53. **(Previously presented)** An apparatus according to claim 52, comprising an integral connection component with a set breaking point as a holding means (50).

54. **(Previously presented)** An apparatus according to claim 39, wherein the measuring head (1) is constructed in such a way that it conveys the light received from the light source (2) to the light sensor (3).

55. **(Previously presented)** An apparatus according to claim 39, wherein the measuring head (1) is constructed in such a way that it conveys the light received by the light source along a light path, adjacent to which the sensor is arranged, but in which the sensor is not directly arranged.

Claim 56. **(Cancelled)**

57. **(Previously presented)** An apparatus according to claim 42, wherein the fluid duct (51) of the fluidics system is constructed in the measuring head (1).

58. **(Previously presented)** An apparatus according to claim 57, wherein the fluid duct (51) is closed via a sealing stopper which is penetrated by a line portion (41) of the

fluidics system on the measuring head receiving side in the measuring position of the measuring head (1).

59. **(Previously presented)** An apparatus according to claim 39, wherein a fluid duct of the titration system is constructed in the measuring head (1).

60. **(Previously presented)** An apparatus according to claim 39, further comprising a stirring device (9, 10, 57) for stirring the liquid sample, the measuring head (2) comprising at least one flow component for cooperating with the liquid sample.

61. **(Previously presented)** An apparatus according to claim 60, further comprising at least one flow blade (57) as a flow component.

62. **(Currently Amended)** A method for examining a liquid sample by titration, wherein an apparatus for examining a liquid sample by titration in accordance with claim 39 is used, comprising:

providing (35) the liquid sample;  
measuring (36) the liquid level of the liquid sample by driving a measuring  
head (1) into the liquid sample from above;  
determining (4) the concentration of at least one type of ion of the liquid  
sample; and  
performing (43) crystallisation measurement by feeding a crystal former into  
the liquid sample and measuring crystal formation.

Claims 63. – 71. **(Cancelled)**

72. **(Previously presented)** A measuring head (1) for use in an apparatus according to claim 39, comprising a recess (31) by which an interface from the material of the measuring head (1) to the open region in the recess (31) is formed such that crosstalk between individual regions of ray positioning in the measuring head (1), which reduces the accuracy of measurement, is avoided.